Availability, Reliability and Survivability: An Introduction and Some Contractual Implications

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Abstract

Information Technology (IT) outsourcing arrangements frequently employ Service Level Agreements (SLAs) that use terms such as availability and reliability. The intent is that the service recipient would like a high degree of system availability and reliability (e.g., 98-99.9% and 85-90% respectively). The service provider is typically rewarded for exceeding specified limits and/or punished for falling below specified limits. During the past several years large enterprises, especially Government agencies, have used another term, survivability, to express another objective to be satisfied by the service provider. This paper explains these terms so that buyer and seller can understand and use them in a contractual context and designers/operators can choose optimal approaches to satisfying the SLAs.

In structuring contracts buyers and sellers should insure that all sellers involved in related IT infrastructures have sufficient information to adequately design to meet desired SLAs. For example, meeting an availability SLA involves hardware design and maintenance, software design, operations, facilities monitoring and maintenance as well as several other contributors. When structuring contracts buyers must make the contributions to downtime by all participants known a priori so sellers can properly design, staff and price offerings. In this paper we explore the relationship between IT Infrastructure hardware design and operations in meeting availability SLAs and give examples of the design implications.

The audience for this includes information technology professionals in organizations that anticipate entering into SLA-based contractual agreements for IT services. After reading this paper, the audience will have a foundation for further investigation appropriate to their own circumstances.